CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the US Postal Service with sufficient postage as First Class Mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Date: March 27, 2006 By: Mari Kleineidam
Mari Kleineidam

PATENT

Attorney Docket No. GC715-2-US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	Group Art Unit: 1636
BRON *et al.*	Examiner: Unassigned
Serial No.: 10/500,660	
Filed: December 22, 2004	
For: OXA1P Enhanced Protein Secretion	

TRANSMITTAL

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the International Search Report mailed 8 November 2005 for PCT/US03/36234, enclosed are the following documents:

1. Information Disclosure Statement (4 pages, in duplicate);
2. Form PTO-1449 (5 pages); and
3. Copies of the International Search Report (2 pages) and 57 references.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required, or credit any overpayment to Deposit Account No. 07-1048, referencing Attorney Docket No. GC715-2-US. A duplicate of this paper is enclosed.

Respectfully submitted,

Dated: 27 March 2006

Kamrin T. MacKnight
Reg. No. 38,230

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GC715-2-US T-IDS

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INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants submit herewith patents, publications or other information (listed on the attached Form PTO-1449 and attached thereto) of which they are aware, that they believe may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56.

This Information Disclosure Statement:

(a)☐ accompanies the new patent application submitted herewith. 37 CFR §1.97(a).

(b)☐ is filed within three months after the filing date of the application or within three months after the date of entry into the national stage of a PCT application as set forth in 37 CFR §1.491.

(c)☒ as far as is known to the undersigned, is filed before the mailing date of a first Office Action on the merits.

(d)☐ is filed after the first Office Action and more than three months after the application filing date or PCT national stage date of entry filing but, as far as is known to the undersigned, prior to the mailing date of either a final rejection or a notice of allowance, whichever occurs first, and is accompanied by either the fee ($180.00) set forth in 37 CFR §1.17(p) **or** a certification as specified in 37 CFR §1.97(e), as checked below. Authorization to charge Deposit Account No. 07-1048 in the amount of $180.00 to cover the cost of this Information Disclosure Statement is provided in the Transmittal Letter submitted herewith in duplicate.

(e)☐ is filed after the mailing date of either a final rejection or a notice of allowance, whichever occurred first, and is accompanied by authorization (in the Transmittal Letter submitted herewith in duplicate) to charge Deposit Account No. 07-1048 the fee ($180.00) set forth in 37 CFR §1.17(l)(1) **and** a certification as specified in 37 CFR §1.97(e), as checked below. **This document is to be considered as a petition requesting consideration of the Supplemental Information Disclosure Statement.**

[If either of boxes (d) or (e) is checked above, the following "certification" under 37 CFR §1.97(e) must be completed.] The undersigned certifies that:

☐ Each item of information contained in the Information Disclosure Statement was cited in a communication mailed from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

☐ No item of information contained in this Information Disclosure Statement was cited in a communication mailed from a foreign patent office in a counterpart foreign application and to the knowledge of the undersigned after making reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

A copy of the items on Form PTO-1449 is supplied: PCT International Search Report for PCT/US02/39634, mailed 28 July 2003 with attached patents and publications.

☒ each (except for the US Patents) ☐ none ☐ only those listed below:

Those patent(s) or publication(s) which are marked with an asterisk (*) on the attached Form PTO-1449 are not supplied because they were previously cited by or submitted to the Office in a

prior application, Serial No. _____ filed _____, and relied upon in this application for an earlier filing date under 35 USC 120.

Those patent(s) or publication(s) which are marked with an asterisk (**) on the attached Form PTO-1449 **(Books not sent)** are not supplied. Complete bibliographic information is unknown or unavailable. The cited publications are books or reference manuals and are commonly available. Reproduction of such publications would result in a voluminous submission.
A concise explanation of relevance of the items listed on PTO-1449 is:

- ☒ not given
- ☐ given for each listed item
- ☐ given for only non-English language listed item(s)
- ☐ in the form of an English language copy of a Search Report from a foreign patent office, issued in a counterpart application, which refers to the relevant portions of the references.

The Examiner is reminded that a "concise explanation of the relevance" of the submitted prior art "may be nothing more than identification of the particular figure or paragraph of the patent or publication which has some relation to the claimed invention." MPEP §609.

While the information and references disclosed in this Information Disclosure Statement may be "material" pursuant to 37 CFR §1.56, it is not intended to constitute an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

In accordance with 37 CFR §1.97(b), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as

defined in 37 CFR §1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 CFR §1.98 and MPEP §609 and the Examiner is respectfully requested to consider the listed references.

Respectfully submitted,

Dated: 29 March 2006

Kamrin T. MacKnight
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INFORMATION DISCLOSURE CITATION

Attorney Docket No.: GC715-2-US	Serial No.: 10/500,660
Applicant: BRON et al.	
Filing Date: March 31, 2005	Group: 1636
Page 1 of 5	Date of this Submission: March 27, 2006

US PATENT DOCUMENTS

Examiner's Initial	Document Number	Date	Name	Class	Sub-Class	Filing Date
A1	5,824,502	10-20-98	Honjo et al.			
A2	5,939,317	08-17-99	Fayard et al.			
A3						
A4						
A5						
A6						
A7						
A8						
A9						
A10						
A11						

FOREIGN PATENT DOCUMENTS

Examiner's Initials	Document Number	Date	Country	Class	Sub-Class	Translation Yes/No
B1						
B2						
B3						

OTHER DOCUMENTS

Examiner's Initials	Author, Title, Date, Pertinent Pages, etc.
C1	Copy of the International Search Report for PCT/US02/39634 mailed 28 July 2003.
C2	Altamura et al.,"*Saccharomyces cerevisiae OXA1* gene is required for the correct assembly of cytochrome *c* oxidase and oligomycin-sensitive ATP synthase," *FEBS Letters*, 382:111-115 (1996).
C3	Altschul et al., "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs," *Nucleic Acids Research*, 25(17):3389-3402 (1997).

Examiner	Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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INFORMATION DISCLOSURE CITATION

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Applicant: BRON et al.	
Filing Date: March 31, 2005	Group: 1636
Page 2 of 5	Date of this Submission: March 27, 2006

OTHER DOCUMENTS

Examiner's Initals	Author, Title, Date, Pertinent Pages, etc.
C4	Antelmann et al., "A Proteomic View on Genome-Based Signal Peptide Predictions," *Genome Research*, 11:1484-1502 (2001).
C5	Bauer et al., "*PET1402*, a nuclear gene required for proteolytic processing of cytochrome oxidase subunit 2 in yeast," *Mol. Gen. Genet.*, 245:272-278 (1994).
C6	Bengtsson et al., "Subunit II of *Bacillus subtilis* Cytochrome *c* Oxidase Is a Lipoprotein," *Journal of Bacteriology*, 181(2):685-688 (1999).
C7	Bolhuis et al., "SecDF of *Bacillus subtilis*, a Molecular Siamese Twin Required for the Efficient Secretion of Proteins," *The Journal of Biological Chemistry*, 273(33):21217-21224 (1998).
C8	Bolhuis et al., "Functional Analysis of Paralogous Thiol-disulfide Oxidoreductases in *Bacillus subtilis*," *The Journal of Biological Chemistry*, 274(35):24531-24538 (1999).
C9	Bonnefoy et al., "The respiratory gene *OXA1* has two fission yeast orthologues which together encode a function essential for cellular viability," *Molecular Microbiology*, 35(5):1135-1145 (2000).
C10	Bonnefoy et al., "Cloning of a human gene involved in cytochrome oxidse assembly by functional complementation of an *oxaf*$^{-}$ mutation in *Saccharomyces cerevisiae*," *Proc. Natl. Acad. Sci. USA*, 91:11978-11982 (1994).
C11	Dalbey et al., "Evolutionarily Related Insertion Pathways of Bacterial, Mitochondrial, and Thylakoid Membrane Proteins," *Annu. Rev. Cell Dev. Biol.*, 16:51-87 (2000).
C12	Dalbey et al., "Protein translocation into and across the bacterial plasma membrane and the plant thylakoid membrane," *TIBS*, 24:17-21 (1999).
C13	Dartois et al., "Genetic Analysis and Overexpression of Lipolytic Activity in *Bacillus subtilis*," *Applied and Environmental Microbiology*, 60(5):1670-1673 (1994).
C14	de Gier et al., "Assembly of a cytoplasmic membrane protein in *Escherichia coli* is dependent on the signal recognition particle," *FEBS Letters*, 399:307-309 (1996).
C15	Deuerling et al., "The *ftsH* gene of *Bacillus subtilis* is involved in major cellular processes such as sporulation, stress adaptation and secretion", *Moecular Microbiology*, 23(5):921-933 (1997).
C16	Errington et al., "Structure and function of the *spoIIIJ* gene of *Bacillus subtilis* : a vegetatively expressed gene that is essential for σ^{G} activity at an intermediate stage of sporulation," *Journal of General Microbiology*, 138:2609-2618 (1992).
C17	Fekkes et al., "Protein Targeting to the Bacterial Cytoplasmic Membrane,"*Microbiology and Molecular Biology Reviews*, 63(1):161-173 (1999).
C18	**Hale & Marham, The Harper Collins Dictionary of Biology, Harper Perennial, NY, 1991.

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Page 3 of 5	Date of this Submission: March 27, 2006

OTHER DOCUMENTS

Examiner's Initials	Author, Title, Date, Pertinent Pages, etc.
C19	He et al., "Membrane Translocation of Mitochondrially coded Cox2p: Distinct Requirements for Export of N and C Termini and Dependence on the Conserved Protein Oxa1p," *Molecular Biology of the Cell*, 8:1449-1460 (1997).
C20	Hell et al., "Oxa1p mediates the export of the N- and C-termini of pCoxII from the mitochondrial matrix to the intermembrane space," *FEBS Letters*, 418:367-370 (1997).
C21	Hell et al., "Oxa1p, an essential component of the N-tail protein export machinery in mitochondria," *Proc. Natl. Acad. Sci. USA*, 95:2250-2255 (1998).
C22	Herrmann et al., "Insertion into the mitochondrial inner membrane of a polytopic protein, the nuclear-encoded Oxa1p," *The EMBO Journal*, 16(9):2217-2226 (1997).
C29	Houben et al., "Nascent Lep inserts into the *Escherichia coli* inner membrane in the vicinity of YidC, SecY and SecA," *FEBS Letters*, 476:229-233 (2000).
C24	Houben et al., "YidC and SecY Mediate Membrane Insertion of a Type I Transmembrane Domain," *The Journal of Biological Chemistry*, 277(39):35880-35886 (2002).
C25	Jacobs et al., "*Bacillus subtilis* PrsA is required *in vivo* as an extracytoplasmic chaperone for secretion of active enzymes synthesized either with or without pro-sequences," *Molecular Microbiology*, 8(5):957-966 (1993).
C26	Jiang et al., "Differential processing of Propeptide Inhibitors of Rap Phosphatases in *Bacillus subtilis*," *Journal of Bacteriology*, 182(2):303-310 (2000).
C27	Jongbloed et al., "TatC Is a Specificity Determinant for Protein Secretion via the Twin-arginine Translocation Pathway," *The Journal of Biological Chemistry*, 275(52):41350-41357 (2000).
C28	Kontinen et al., "The PrsA lipoprotein is essential for protein secretion in *Bacillus subtilis* and sets a limit for high-level secretion," *Molecular Microbiology*, 8(4):727-737 (1993).
C29	Kunst et al., "The complete genome sequence of the Gram-positive bacterium *Bacillus subtilis*," *Nature*, 390:249-264, (1997).
C30	Kyhse-Andersen, "Electroblotting of multiple gels: a simple apparatus without buffer tank for rapid transfer of proteins from polyacrylamide to nitrocellulose," *Journal of Biochemical and Biophysical Methods*, 10:203-209 (1984).
C31	Meijer et al., "The endogenous *Bacillus subtilis (natto)* plasmids pTA 1015 AND pTA 1040 contain signal peptidase-encoding genes : identification of a new structural module on cryptic plasmids," *Molecular Microbiology*, 17(4):621-631 (1995).
C32	**Miller, J. H., Experiments in Molecular Biology, Cold Spring Harbor Laboratory Press, Cold Spring Harbor NY (1982).
C33	Moore et al., "Chloroplast Oxa1p Homolog Albino3 Is Required for Post-translational Integration of the Light Harvesting Chlorophyll-binding Protein into Thylakoid Membranes," *The Journal of Biological Chemistry*, 275(3):1529-1532 (2000).

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INFORMATION DISCLOSURE CITATION

Attorney Docket No.: GC715-2-US	Serial No.: 10/500,660
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Filing Date: March 31, 2005	Group: 1636
Page 4 of 5	Date of this Submission: March 27, 2006

OTHER DOCUMENTS

Examiner's Initals	Author, Title, Date, Pertinent Pages, etc.
C34	Murakami et al., "Analysis of the *Bacillus subtilis spoIIIJ* Gene and Its Paralogue Gene, yqG. *Journal of Bacteriology*, 184(7):1998-2004 (2002).
C35	Palva, "Molecular cloning of α-amylase gene from *Bacillus amyloliquefaciens and its expression* in *B. subtilis*," *Gene*, 19:81-87 (1982).
C36	Pogliano et al., "SecD and SecF facilitate protein export in *Escherichia coli*," *The EMBO Journal*, 13(3):554-561 (1994).
C37	Pohlschröder et al., "Protein Translocation in the Three Domains of Life: Variations on a Theme," *Cell*, 91:563-566 (1997).
C38	Prágai et al., "YsxC, a Putative GTP-Binding Protein Essential for Growth of *Bacillus subtilis* 168," *Journal of Bacteriology*, 182(23):6819-6823 (2000).
C39	Prágai et al., "The signal peptidase II (*lsp*) gene of *Bacillus subtilis*," *Microbiology*, 143:1327-1333 (1997).
C40	Robinson et al., "Protein Targeting by the Twin-Arginine Translocation Pathway," *Nature Reviews Molecular Cell Biology*, 2:350-356 (2001).
C41	Sääf et al., "Membrane Topology of the 60-kDa Oxa1p Homologue from *Escherichia coli*," *The Journal of Biological Chemistry*, 273(46):30415-30418 (1998).
C42	**Sambrook, J. et al., Molecular Cloning, A Laboratory Manual, 2nd Ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989.
C43	Samuelson et al., "YidC mediates membrane protein insertion in bacteria," *Letters to Nature*, 406:637-641 (2000).
C44	Schaeffer et al., "Catabolic Repression of Bacterial Sporulation," *Proc. Natl. Acad. Sci. USA*, 54:704-711 (1965).
C45	Scotti et al., "YidC, the *Escherichia coli* homologue of mitochondrial Oxa1p, is a component of the Sec translocase," *The EMBO Journal*, 19(4) :542-549 (2000).
C46	**Singleton et al., Dictionary of Microbiology and Molecular Biology, 2nd Ed., John Wiley and Sons, New York, 1994.
C47	Sipos et al., "Predicting the topology of eukaryotic membrane proteins," *Eur. J. Biochem.*, 213:1333-1340 (1993).
C48	Stuart et al., "Making membranes in bacteria ," *Nature*, 406:575, 577 (2000).
C49	Tjalsma et al., "Functional analysis of the secretory precursor processing machinery of *Bacillus subtilis*: identification of a eubacterial homolog of archaeal and eukaryotic signal peptidases," *Genes & Develop.*,12:2318-2331 (1998).

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C50	Tjalsma et al., "*Bacillus subtilis* Contains Four Closely Related Type I Signal Peptidases with Overlapping Substrate Specificities," *The J. Biol. Chem.*, 272(41):25983-25992 (1997).
C51	Tjalsma et al., "The Role of Lipoprotein Processing by Signal Peptidase II in the Gram-positive Eubacterium *Bacillus subtilis*," *The J. Biol. Chem.*, 274(3):1698-1707 (1999).
C52	Tjalsma et al., "Conserved Serine and Histidine Residues Are Critical for Activity of the ER-type Signal Peptidase SipW of *Bacillus subtilis*," *The Journal of Biological Chemistry*, 275(33):25102-25108 (2000).
C53	Tjalsma et al., "Signal Peptide-Dependent Protein Transport in *Bacillus subtilis*: a Genome-Based Survey of the Secretome," *Microbiology and Molecular Biology Reviews*, 64(3):515-547 (2000).
C56	Urbanus et al., "Sec-dependent membrane protein insertion: sequential interaction of nascent FtsQ with SecY and YidC, *EMBO Reports*, 21(61):524-529 (2001).
C55	Vagner et al., "A vector for systematic gene inactivation in *Bacillus subtilis*," *Microbiology*, 144:3097-3104 (1998).
C56	Van Dijl et al., "Signal peptidase I overproduction results in increased efficiencies of export and maturation of hybrid secretory proteins in *Escherichia coli*," *Mol. Gen. Genet.*, 227:40-48 (1991).
C57	Van Dijl et al., "Identification of the Potential Active Site of the Signal Peptidase SipS of *Bacillus subtilis*," *J. Biol. Chem.*, 270(8):3611-3618 (1995).
C58	Van Dijl et al., "Non-functional expression of *Escherichia coli* signal peptidase I in *Bacillus subtilis*," *Journal of General Microbiology*, 137:2073-2083 (1991).
C59	van Wely et al., "Functional Identification of the Product of the *Bacillus subtilis yvaL Gene as a SecG Homologue*," *Journal of Bacteriology*, 181(6):1786-1792 (1999).
C60	van Wely et al., "The carboxyl terminus of the *Bacillus subtilis* SecA is dispensable for protein secretion and viability," *Microbiology*, 146:2573-2581 (2000).
C62	Vieira et al., "New pUC-derived cloning vectors with different selectable markers and DNA replication origins," *Gene*, 100:189-194 (1991).
C63	Wertman et al., "Host vector interactions which affect the viability of recombinant phage lambda clones," *Gene*, 49:253-262 (1986).

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